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1. ~~A multiphoton excitation scanning laser~~
microscope, comprising:

(a) a station for placing a sample to be observed;

5 (b) a laser beam source for emitting a pulse laser
beam for exciting said sample to cause the sample to
emit a fluorescent light by multiphoton excitation
phenomenon;

10 (c) a detector for detecting said fluorescent
light; and

(d) an optical system for forming an optical path
of said pulse laser beam for guiding said pulse laser
beam from said laser beam source to said sample, said
optical system including

15 a pre-chirp compensator arranged on said optical
path for preventing a pulse width of said pulse laser
beam from widening due to a wavelength range of the
pulse when the pulse laser beam passes through the
optical system,

20 a plurality of objective lenses capable of being
selectively arranged on said optical path for
collecting the pulse laser beam on the sample, and

a correcting mechanism including optical
correcting means for correcting an optical path length
25 of said optical path to cause the pulse width of said
pulse laser beam to be constant on a focal plane of
said optical system in accordance with respective

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optical path lengths of said objective lenses.

2. The microscope according to claim 1, further comprising an interlocking mechanism for causing said correcting mechanism to be interlocked with said objective lenses.

3. The microscope according to claim 1, wherein said optical correcting means is arranged on said optical path in a position where said pulse laser beam forms a parallel luminous flux and there is no change in the angle of said luminous flux.

4. The microscope according to claim 1, wherein said optical correcting means includes a plurality of optical correcting elements capable of being arranged selectively on said optical path to cause the optical path length of said optical path to be constant in accordance with the respective optical path lengths of said objective lenses.

5. The microscope according to claim 4, wherein said correcting mechanism includes a rotor supporting said optical correcting elements.

6. The microscope according to claim 4, wherein said correcting mechanism includes a slider supporting said optical correcting elements.

7. The microscope according to claim 4, wherein said optical correcting elements and said objective lenses are supported by the same supporting member and moved together.

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light to said detector.

13. The microscope according to claim 1, further comprising an optical system and a detector for detecting a transmitted light of the pulse laser beam transmitted through the sample.

14. A multiphoton excitation scanning laser microscope, comprising:

(a) a station for placing a sample to be observed;

(b) a laser beam source for emitting a pulse laser beam for exciting said sample to cause the sample to emit a fluorescent light by multiphoton excitation phenomenon;

(c) a detector for detecting said fluorescent light; and

(d) an optical system for forming an optical path of said pulse laser beam for guiding said pulse laser beam from said laser beam source to said sample, said optical system including

a pre-chirp compensator arranged on said optical path for preventing a pulse width of said pulse laser beam from widening due to a wavelength range of the pulse when the pulse laser beam passes through the optical system,

an optical member selectively arranged on said optical path, and

a correcting mechanism including optical correcting means for correcting an optical path length

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- 5 15. The microscope according to claim 14, wherein
said optical member comprises a plurality of objective
lenses capable of being selectively arranged on said
optical path for collecting the pulse laser beam on the
sample.
- 10 16. The microscope according to claim 14, wherein
said optical member comprises a plurality of objective
lenses capable of being selectively arranged on said
optical path for collecting the pulse laser beam on the
sample, and a flat optical element selectively inserted
15 between said pre-chirp compensator and said objective
lenses.
17. The microscope according to claim 16, wherein
said optical element comprises an optical element for a
~~Hemarski observation of transmitted light.~~